

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1, 3, 29 and 30 are amended and claims 2 and 15-28 are cancelled herein without prejudice. New claims 32-38 are added. Accordingly, claims 1, 3-14 and 29-38 are pending in the application. Re-examination and reconsideration of the application, as amended herein, are requested.

Claims 15-28 had been withdrawn from consideration, following a restriction and election, as discussed in paragraphs 1-5 of the Office Action. By the present amendment, withdrawn claims 15-28 are cancelled without prejudice, for purposes of expediting the prosecution of the claims under consideration. Applicant reserves the right to seek patent protection for subject matter included in the cancelled claims.

Original claims 1, 2, 6-8, 10-13, 29 and 30 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,498,043 to Schulman et al. In addition, original claims 3, 4 and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shulman et al. in view of U.S. Patent No. 6,414,835 to Wolf et al. Also, original claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over Schulman '043 in view of U.S. Patent No. 6,516,808 to Shulman. These rejections are respectfully traversed, in view of the claims as amended herein.

In particular, as amended, claim 1 recites a sensing apparatus that includes a substrate having first and second sides and a via comprising a hollow path formed from the first side of the substrate to the second side of the substrate and filled with an electrically conductive material for making electrical contact from the first side of the substrate to the second side of the substrate, wherein the via is hermetically sealed from the first side of the substrate to the second side of the substrate. Similar features are recited in independent claims 29 and 31.

As described in the present specification, embodiments of the present invention involve a substrate in which a hollow path is formed from the first side (sensor side) to the second side (electronics side), where the hollow path is filled with a conductive filling material. (See, e.g., pg. 8, ll. 25-27 and pg. 9, ll. 27-29 of the present application.) Embodiments described in the

present specification provide for various manners in which such a hollow path formed all of the way through a sensor substrate may be filled, hermetically, so that electrical conduction is provided from the sensor side of the substrate to the electronics side of the substrate in a manner that can simplify manufacturing steps and provide reliable, cost effective sensor devices. As a result, more complex stair-step conductive vias as employed by Shulman or Shulman et al. may be avoided. Also, embodiments of the present invention may avoid multiple manufacturing steps of forming separate conductive sections of a via on each layer and forming conductive traces between layers for coupling conductive sections of the via (for example, as shown by traces 72 and 74 in the Wolf et al. patent). Accordingly, significant advantages can be provided by employing a sensor configuration as claimed.

Accordingly, it is respectfully submitted that the independent claims, as amended herein, are patentably distinguished over the cited references, alone or in combination. Dependant claims are believed to be allowable, at least for reasons as noted above with respect to the independent claims and for further reasons apparent from the language of the dependent claims. For example, new dependent claim 32 recites that "each via comprises a conductive path formed of a single conductive material extending without interruption through the substrate from the first side of the substrate to the second side of the substrate." New dependent claim 33 recites that "the single conductive material comprises a flowable conductive filler material that is disposed within the hollow path in a flowable form and hardened within the hollow path of each via to form a solid, filled via." New dependent claim 34 recites that "each via comprises a flowable conductive filler material that is disposed within the hollow path in a flowable form and hardened within the hollow path to form a solid, filled via extending, without interruption, from the first side of the substrate to the second side of the substrate." These features are believed to further distinguish the claimed invention over the cited references.

Furthermore, it is noted that the Wolf et al. patent is owned by Medtronic, Inc., the same entity that owns the present application. Accordingly, notwithstanding the distinctions noted above, Applicant reserves the right to seek to remove rejections by filing a statement under 35 U.S.C. 103 (c), were appropriate in the future.

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance. Re-examination and reconsideration are requested. If, for any reason, the Examiner believes that the application is not in condition for allowance, the Examiner is requested to contact the undersigned attorney at the Los Angeles telephone number (310) 975-7963, to discuss steps that the Examiner believes may be needed to place the application in condition for allowance.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-0872. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-0872.

Respectfully submitted,

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FOLEY & LARDNER LLP

Customer Number: 23392

Telephone: (310) 975-7963

Facsimile: (310) 557-8475

By: 

Ted R. Rittmaster

Attorney for Applicant

Registration No. 32,933